When Opportunity Strikes

Site Development Contractor Enters HDD Culvert-Cleaning Market

Sometimes things happen for a reason.

That's what Jarod L. Wintermyer thought when a week after reading an article about the invention of culvert-cleaning attachments for horizontal directional drilling (HDD) machines, he received a call from a local engineering firm asking if his father's company, Leon E. Wintermyer Inc., performed such work.

"At that moment, I knew I had to act on this opportunity and I immediately called Bob Harr (the inventor of the culvert-cleaning attachments featured in the article)," Wintermyer says. "Within a few weeks, I had arranged our first culvert-cleaning demonstration in Harrisburg, PA, with personnel from local municipalities, engineering firms, railroad companies, the Pennsylvania Department of Transportation (Penn DOT) and the Pennsylvania Turnpike Commission."

Now, less than a year later, Leon E. Wintermyer Inc. in Etters, PA, has purchased a number of the culvert-cleaning attachments and has performed several culvert-cleaning jobs, including a recent project for the Delaware Department of Transportation.

New industry

Culvert-cleaning may be a new endeavor for Leon E. Wintermyer, but it is just one of many services the 30-year-old company offers. Jarod Wintermyer is the business development manager. His father started the company in 1969 as an excavation business with a track loader, dump truck and trailer. Since becoming incorporated in 1973, the company has grown to offer land clearing, excavation, underground utilities, concrete curbing, paving, trucking, HDD and now culvert cleaning.

"We describe ourselves as a total site development contractor," he says. In addition to residential, large commercial, industrial and institutional site development projects, the company's 160 employees also are hired to do work for Penn DOT.

Wintermyer, whose responsibilities also include managing the company's HDD division, says he never gets tired of demonstrating how HDD works. And he says the introduction of HDD culvert-cleaning attachments is a new opportunity for people to serve in the industry. "There are still many people who have never actually seen the HDD process do not fully understand it," he says. "I always enjoy seeing people's faces when they see the drill head for the first time poke out of the ground into the exit pit. They have this amazed expression on their face that's priceless."

Many of the local and state government officials who attended Leon E. Wintermyer's first HDD culvert-cleaning demonstration had that same reaction. The company has a total of 18 culvert-cleaning attachments, which were invented by Harr Technologies and are produced by Vermeer Manufacturing Company and sold through the Vermeer dealership network. The patent-pending culvert-cleaning method uses four types of attachments – the barrel reamer, push bucket, pull bucket and brush. Wintermyer says the company owns barrel reamer attachments that range in size from 10 to 18 inches, push buckets from 14 to 18 inches, pull buckets from 14 to 24 inches, and brushes from 15 to 32 inches, which are used with its Vermeer Navigator D24x40 Series II HDD machine.

Unclogging DOT culverts

For the Delaware DOT project, Leon E. Wintermyer was hired to clean three culverts, including an 18-inch culvert pipe that was 180 feet long.

First, Wintermyer scheduled a site visit to inspect the culvert and determine if the HDD culvert-cleaning attachments would be the best solution to the problem. When he arrived at the site, he found that the upper end of the pipe was connected to a manhole and the lower end was connected to an end wall near a creek. Delaware DOT officials had twice attempted to clean the culvert pipe with a jetter cleaner truck, but were unsuccessful because the pipe was clogged with sediment. Before they were contacted by Wintermyer, their only other alternative would have been to completely replace the culverts.

To begin cleaning the 180-foot culvert pipe, crew members set up their HDD rig on the opposite side of the creek to the outfall of the pipe. Wintermyer says they

then extended about 20 feet of drill stem across the creek bed until the attachment was near the opening of the culvert pipe. The first attachment crews used was a 10-inch barrel reamer, which they rotated and pushed through the entire length of the pipe to evaluate its integrity, the type of debris inside, and whether there were any other obstructions. Once the barrel reamer attachment reached the inside of the manhole, Wintermyer says they were confident they would be able to adequately clean the entire culvert.

After the barrel reamer was pulled and rotated back to the HDD machine, crew members then attached a 14-inch push bucket. Their major challenge was controlling the amount of sediment that came out of the outfall of the pipe near the creek. To ensure the sediment didn't go into the creek, most of it was pushed up to the manhole where Delaware DOT officials used a vacuum system to remove it.

"We did not want the sediment getting into the creek because of environmental concerns," he says. "Our crew did a wonderful job of controlling and containing the sediment. We didn't even have a shovel full of sediment get into the creek as a result of our actions. This certainly proves the point that the process is environmentally friendly."

And unlike jetter cleaner trucks, which disperse a large amount of water into culverts to unplug pipes, the water jets on the HDD culvert-cleaning attachments are controlled by a button on the HDD machine. This allows the operator to control the amount of water needed to clean the culvert. In fact, operators can opt not to use the water jets at all and just use the tools dry. Wintermyer says the operator-controlled water jets helped his crew better control how the sediment flowed, thus keeping it from going into the creek. "We used very little water, only about 100 to 150 gallons during the process," he says.

One of the final tools used in the culvert-cleaning process is the brush attachment, which cleans the crevices and grooves of the culvert pipe after the soil and larger debris have been removed. Wintermyer's crew attached a 15-inch brush to the HDD rig and pushed the brush attachment through the entire pipe to the inside of the manhole. As the brush attachment neared the manhole, a large amount of sediment was pushed into the manhole. To clean the culvert pipe further, Wintermyer says they chose a 24-inch brush attachment to scour the pipe one final time.

"We removed about half of the bristle rings on the attachment so the bristles were able to somewhat collapse or bend inside the pipe," he says. "We wanted to scour the inside of the pipe and remove any loose debris that may have been attached to the walls of the pipe.

"I believe everyone was amazed by the amount of material that continued to come out of the culvert as a result of the brush attachments," he adds.

In all, it took the three-man crew less than five hours to completely clean the culvert.

"The project went extremely well, and I believe the Delaware DOT officials were impressed," Wintermyer says. "They said that we solved their problems."

FOR MORE INFORM ATION:

Contractor:

Culvert cleaning equipment:

Vermeer, (888) 837-6337, vermeer.com

HDD rig:

Vermeer, (888) 837-6337, vermeer.com